	Division of Environmental Health and Communicable Disease Prevention	
	Section: 4.0 Diseases and Conditions	New 7/03
	Subsection: HIV / AIDS	Page 2 of 21
	Part: HIV Disease	Page 1 of 5

HIV/AIDS


HIV Disease

HIV disease is the result of infection with human immunodeficiency virus (HIV), which is primarily transmitted through sexual contact, and through sharing needles and other drug paraphernalia by injecting drug users. HIV infection results in progressive deterioration of the immune system, a process that generally takes place over a period of years. During the early years of HIV disease, the infected person is usually asymptomatic. However, as damage to the immune system continues, the individual typically begins to experience non-specific signs/symptoms of illness and then, in the later stages of the disease when immune system dysfunction becomes severe, the person becomes at risk for serious opportunistic infections and malignancies. It is in the later stages of HIV disease that the individual comes to meet the case definition for AIDS.

Etiologic Agent: Human immunodeficiency virus (HIV), a retrovirus, whose genetic material becomes incorporated into the genetic material of certain cells of the infected host, resulting in life-long infection.

Mode of Transmission: HIV is primarily spread through sexual contact with an infected person, and through sharing needles and/or other drug paraphernalia with someone who is infected. Babies born to HIV-infected women may become infected before or during birth, or through breast-feeding after birth. Health care workers can become infected through percutaneous, mucous membrane, or non-intact skin exposures to blood from an HIV-infected patient. HIV can also be transmitted through transfusions of contaminated blood or blood clotting factors, although this is now an extremely rare occurrence.

Human immunodeficiency virus has been isolated from blood (including lymphocytes, macrophages, and plasma) and from other body fluids, such as cerebrospinal fluid, pleural fluid, human milk, semen, cervical secretions, saliva, urine, and tears. Only blood, semen, cervical secretions, and human milk, however, have been implicated epidemiologically in transmission of infection. The established modes of HIV transmission in the United States are the following: (1) sexual contact (homosexual and heterosexual), (2) percutaneous (from needles or other sharp instruments) or mucous membrane exposure to contaminated blood or other body fluids with high titers of HIV, (3) mother-to-infant (i.e., vertical) transmission before or around the time of birth, and (4) breastfeeding. Transfusion of

	Division of Environmental Health and Communicable Disease Prevention	
	Section: 4.0 Diseases and Conditions	New 7/03
	Subsection: HIV / AIDS	Page 3 of 21
	Part: HIV Disease	Page 2 of 5


blood, blood components, or clotting factor concentrates is now rarely a mode of HIV transmission in the United States because of exclusion of infected donors, viral inactivation treatment of clotting factor concentrates, and the availability of recombinant clotting factors. In the absence of documented parenteral, mucous membrane, or skin contact with blood or blood-containing body fluids, transmission of HIV rarely has been demonstrated to occur in families or households or with routine care in hospitals or clinics. Transmission of HIV has not been demonstrated to occur in schools or child care settings. A few cases of HIV infection in children have resulted from sexual abuse by an HIV-seropositive person. (2000 Red Book, p.330-1) Infections that. can be asymptomatic for long periods after vertical transmission (e.g. HIV infection. . .) are more problematic [in terms of assessing the likelihood of sexual abuse]. The possibility of vertical transmission should be considered in these cases, but an evaluation of the patient's circumstances by the local child protective services agency is warranted in most. (2000 Red Book, p.143)

Incubation: In the absence of antiretroviral treatment, the median time between infection with HIV and the development of AIDS among adults is approximately 10 years.

Clinical Features: Within several weeks after infection, many persons develop an acute flu-like illness lasting for approximately two weeks. Most individuals then remain symptom-free for long periods (several years), but viral replication is ongoing during this time. As the immune system becomes increasingly damaged, individuals typically begin to develop non-specific symptoms/signs such as anorexia, lymphadenopathy, chronic diarrhea, weight loss, fever and fatigue. In advanced stages of the disease, persons become increasingly susceptible to life-threatening opportunistic infections and malignancies. See figure 3 on page 3.

Complications: Infection with HIV generally results in progressive damage to the immune system. This damage eventually becomes so severe that the individual develops serious opportunistic infections and malignancies, which can result in death.

Diagnosis: HIV infection in adults, adolescents, and children >18 months of age is generally diagnosed with an HIV antibody test.

	Division of Environmental Health and Communicable Disease Prevention	
	Section: 4.0 Diseases and Conditions	New 7/03
	Subsection: HIV / AIDS	Page 4 of 21
	Part: HIV Disease	Page 3 of 5

Serologic diagnosis of HIV infection in the perinatally-exposed infant <18 months of age is complicated by passive transfer of maternal antibody across the placenta; this antibody can persist in the child for up to 18 months. Consequently, perinatally-exposed infants are usually diagnosed using viral diagnostic assays such as polymerase chain reaction (PCR) or HIV culture.

Treatment:

A number of antiretroviral drugs are now available for the treatment of HIV infection. These drugs, while not eliminating the infection, can decrease the amount of virus in the blood and slow the progression of the disease. Because HIV can become resistant to any of these drugs, combination treatment is now routinely used. It is vitally important that all antiretroviral medication be taken exactly as prescribed, and that doses are not missed.

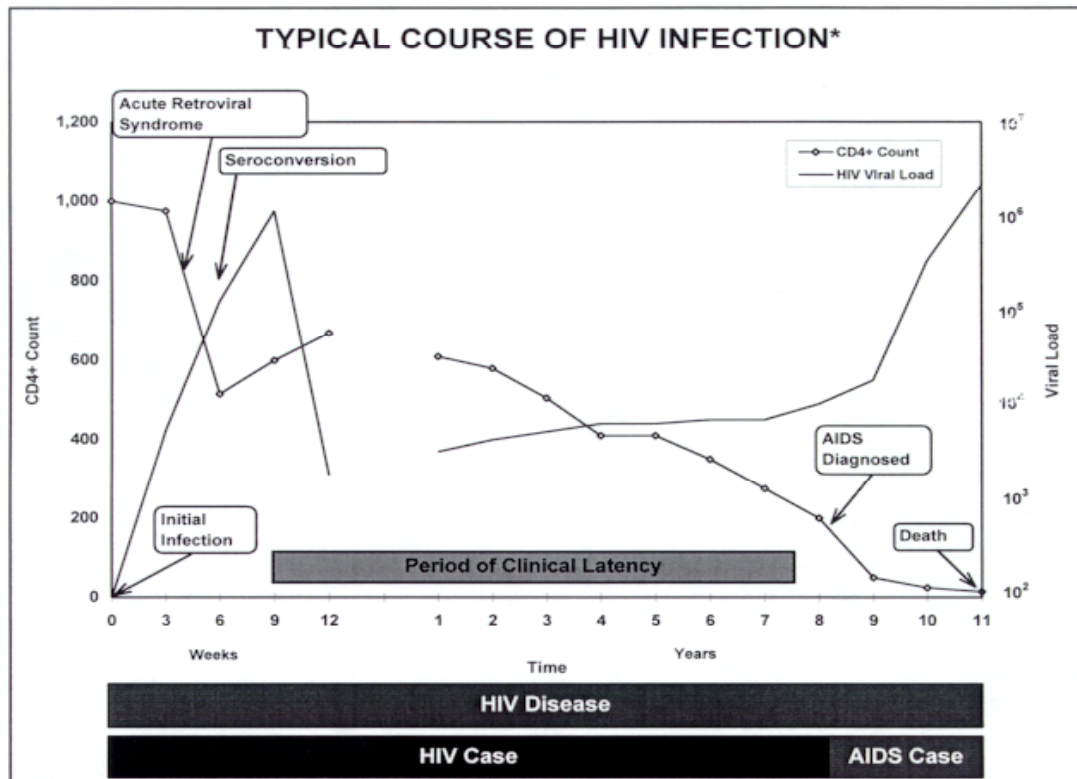
The currently recommended drug combinations are not easy to take because of the large number of pills that must be taken at multiple specified times, and because of side effects associated with the medications. In addition, while the drugs provide significant benefit for many HIV-infected persons, they are not effective in all infected individuals. Also, persons who initially respond to combination therapy may subsequently develop resistance to their drug regimens.

Persons in the later stages of HIV disease are also routinely given antimicrobial medications to reduce the risk of developing certain opportunistic infections.

**Disease
Intervention of
Sex Partners:**
the

Sex and needle-sharing partners of HIV-infected persons should be notified of their exposure as soon as possible after they are identified to offer testing, promote life-style changes and prevent the spread of

virus (which is generally done by the Disease Intervention Specialists, Section 1.0). Exposed contacts testing HIV-negative but in the [window period](#) should be re-tested until six months after the time of last exposure.




*This figure shows the "typical" course of HIV disease. It may not reflect the disease course in a particular person, given the wide range of individual variation which exists. In addition, this figure was developed prior to the use of the newer combination antiretroviral therapies. The use of these therapies can change the appearance of the figure (for example, by increasing the period of clinical latency, or by increasing the period from AIDS diagnosis to death).

Associated Clinical Manifestations of HIV Disease and the CD4+ Count Range* at Which They Tend to Appear:

CD4+ >500	Persistent Generalized Lymphadenopathy Recurrent Vaginal Candidiasis	CD4+ <200	<i>P. carinii</i> Pneumonia Disseminated Histoplasmosis Miliary/Extrapulmonary TB Progressive Multifocal Leuko-encephalopathy (PML) HIV-Associated Dementia Wasting Peripheral Neuropathy Non-Hodgkins Lymphoma Cardiomyopathy
CD4+ 200-500	Pneumococcal and Other Bacterial Pneumonia Pulmonary TB Herpes Zoster Oropharyngeal Candidiasis (Thrush) Cryptosporidiosis, Self-Limited Kaposi's Sarcoma Oral Hairy Leukoplakia Cervical Intraepithelial Neoplasia Cervical Cancer Anemia B-Cell and Hodgkin's Lymphoma Idiopathic Thrombocytopenic Purpura Lymphocytic Interstitial Pneumonitis	CD4+ <100	Disseminated Herpes Simplex Toxoplasmosis Cryptococcosis Cryptosporidiosis, Chronic Microsporidiosis Candidal Esophagitis
	CD4+ <50		Disseminated Cytomegalovirus (CMV) Disseminated Mycobacterium avium Complex Central Nervous System (CNS) Lymphoma

*Most complications occur with increased frequency at lower CD4 counts.

Bartlett JG, Gaillat JE. 2001-2002 *Medical Management of HIV Infection*. Published by Johns Hopkins University, Department of Infectious Diseases, 2001. http://www.hopkins-aids.edu/publications/book/book_toc.html

	Division of Environmental Health and Communicable Disease Prevention	
	Section: 4.0 Diseases and Conditions	New 7/03
	Subsection: HIV / AIDS	Page 6 of 21
	Part: HIV Disease	Page 5 of 5

HIV Disease Websites

DHSS Disease Directory: HIV/AIDS

<http://www.dhss.state.mo.us/GLRequest/ID/HIVAIDS.html>

CDC Division of HIV/AIDS Prevention

<http://www.cdc.gov/hiv/dhap.htm>

HIV/AIDS Treatment Information Service (ATIS)

<http://www.aidsinfo.nih.gov/>

NIAID. AIDS.

<http://www.niaid.nih.gov/publications/aids.htm>

Medical Management of HIV Infection

http://www.hopkins-aids.edu/publications/book/book_toc.html

HIV InSite Knowledge Base

<http://hivinsite.ucsf.edu/InSite.jsp?page=KB>

CDC. STD Facts & Information: HIV/AIDS & STDs

http://www.cdc.gov/nchstp/dstd/disease_info.htm#HIV&STDs

National Library of Medicine HIV/AIDS Information

<http://sis.nlm.nih.gov/HIV/HIVMain.html>

National Prevention Information Network (NPIN) HIV/AIDS Resources

<http://www.cdcnpin.org>

HRSA HIV/AIDS Services

<http://hab.hrsa.gov/>

MMWRs on HIV/AIDS

<http://www.cdc.gov/hiv/pubs/mmwr.htm>

FDA. Licensed / Approved HIV, HTLV and Hepatitis Tests

<http://www.fda.gov/cber/products/testkits.htm>